

Date: Tuesday, 24/02/2009 9:54:59 AM
 User: Jean-Luc Lilenard

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : STUD
 Job Number : 46055
 Estimate Number : 13229
 P.O. Number :
 This Issue : 24/02/2009 S.O. No. :
 Prsht Rev. : NC
 First Issue : 11 Type : MACHINED PARTS
 Previous Run : 44686
 Written By : *Jul 09.02.24*
 Checked & Approved By :
 Comment : Rev:A New Issue 08-01-29 JLM Verified By:EC
 Est Rev:B Material Change 09-01-07 JLM Verified By:EC
 Est Rev:C Added note on Step 2 09-01-26 JLM Verified By:EC

Part Number : D36887
 Drawing Number : D3688 REV B
 Project Number : N/A
 Drawing Revision : B
 Material :
 Due Date : 03/03/2009 Qty: 12 Um: Each

NDT 13

Additional Product

Job Number:



Seq. # Machine Or Operation: Description :

1.0 M174PHH900R1000 17-4PH SS ROUND BAR 1.00 COND.900



Comment: Qty.: *810* 17-4PH SS ROUND BAR 1.00 ***CONDITION H900****

BATCH: *M110990*

mk 09/03/06

(14)

2.0 BAND SAW BAND SAW



Comment: BAND SAW

DO NOT USE CHOP SAW*

Cut blank 9.724" long

mk 09/03/06

(14)

3.0 DOOSAN LATHE DOOSAN LATHE



Comment: DOOSAN LATHE

1-Turn as per Folio FA729 Rev: *1/1A* & Dwg D3688 Rev: *B*

2-Deburr per dwg D3688

mk 09/03/00 / 09/03/13

(14)

4.0 QC2 INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

mk 09/03/13

(14)

5.0 LATHE CONV. CONVENTIONAL LATHE



Comment: CONVENTIONAL LATHE

Face to finished length as per dwg D3688 AND center drill as per Dwg D3688


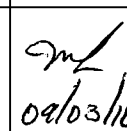
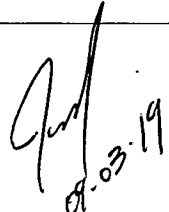

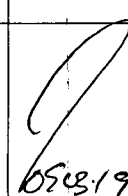
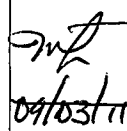

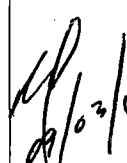
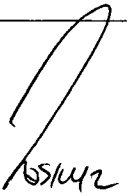
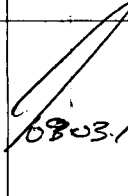
mk 09/03/13

(14)

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D3688-7 PAR #: N/A Fault Category: Prod/Machined Part NCR: (Yes) No DQA: D Date: 09/03/08
 Resolution: Re-work Disposition: SCRAP QA: N/C Closed: D Date: 09/03/08

NCR: <u>46055</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
09/03/10	3.0	Vibration occurs during thread cutting operation R.C: process/design error.		center drill #2 from #2 to #4. see attached email	 09/03/10	 09-03-19		 09-03-19
09/03/11	3.0	2 parts scrap. the boring bar broke inside the part R.C. poor tooling		scrap and destroy replace Qty: 2 Batch: 1910990	 09/03/11			
09/03/13	3.0	2 pieces salvaged. see above		Remove broken bar and continue with machining operations.	 09/03/13	09-03-19		 08-03-19

NOTE: Date & initial all entries

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: STUD

Job Number: 46055

Part Number: D36887

Job Number:



Seq. #: Machine Or Operation: Description :

6.0 QC2 INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

09/03/13 (14)

7.0 DOOSAN LATHE DOOSAN LATHE



Comment: Doosan Lathe

1- Turn as per Folio FA718 Rev: N/A & Dwg D3688 Rev: B

2-Deburr per dwg D3688

09/03/13 (14)

8.0 QC2 INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

09/03/13 (14)

9.0 QC8 SECOND CHECK



Comment: SECOND CHECK

09/03/19

10.0 PG PURCHASING



Comment: PURCHASING

Issue P/O: 8450

LPI Per ASTM 1417 LEVEL 2

Certificate of conformity is required

09/03/25 (13)

11.0 PACKAGING 1 PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Receive & Inspect For Transit Damage

Ensure certificate of conformity is attached

09/03/25 (13)

12.0 QC5 INSPECT WORK TO CURRENT STEP




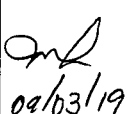

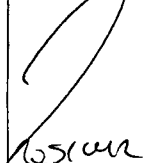

Comment: INSPECT WORK TO CURRENT STEP

09/03/25 (13)

last page

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D3688-7 PAR #: N/A Fault Category: Prod / Machined Parts NCR: Yes No DQA: D Date: 09/03/20
 Resolution: Re-work Disposition: Scrap QA: N/C Closed: D Date: 09/03/20

NCR: <u>46055</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
09/03/19	7.0	1 part scrap. I.D. of 0.438 is 0.444. Incorrect offset position of boring tool, removed too much mat'l after broken insert was replaced. E.C: operator error	 05/04/20	Scrap destroyed - No replace.	 09/03/19	 09/03/19	 05/04/20	 09/03/19

NOTE: Date & initial all entries

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: STUD

Job Number: 46055

Part Number: D36887

Job Number:



Seq. #:

Machine Or Operation:

Description :

13.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: _____

Pc 9/3/20 (13)

14.0

QC21

FINAL INSPECTION/W/O RELEASE



09/03/25

Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



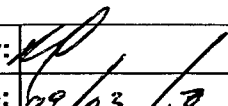
mf 09-03-25

DART AEROSPACE LTD		Work Order: 46055
Description: STD		Part Number: D3688-7
Inspection Dwg: D3688 Rev: 3		Page 1 of 1

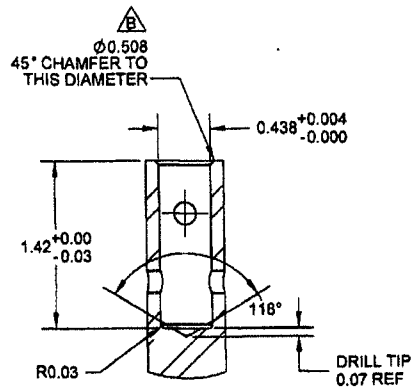
FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

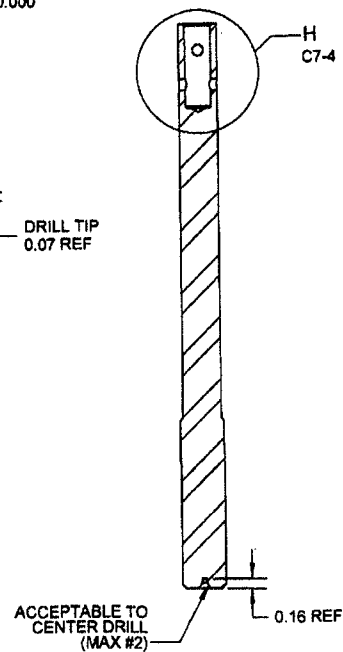
Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
.508 x	+/- .010	.508				
45°	+/- 1/2°	45°				
.438	+/- .004	.440				
1.42	+/- .030	1.415				
118°	+/- 1/2°	118°				
.0716	+/- .030	.07				
90°	+/- 1/2°	90°				
.659	+0.0 - .015	.650				
.189	+0.005 - 0.001	.191				
1.025	+0.0 - .010	1.020				
.659	+0.0 - .015	.650				
9.624	+/- .015	9.624				
2.90	+/- .030	2.90				
3/4-16 LH 2A		2A				
.445	+0.0 - .010	.440				
.189	+0.005 - .001	.191				

Measured by: 	Audited by: B.A	Prototype Approval:	N/A
Date: 09/03/19	Date: 09/03/19	Date:	N/A

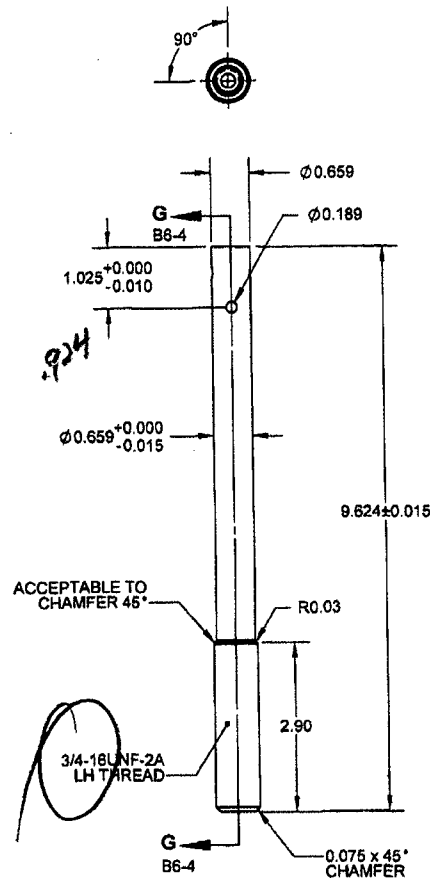
Rev	Date	Change	Revised by	Approved
A		New Issue	KJ/JLM	



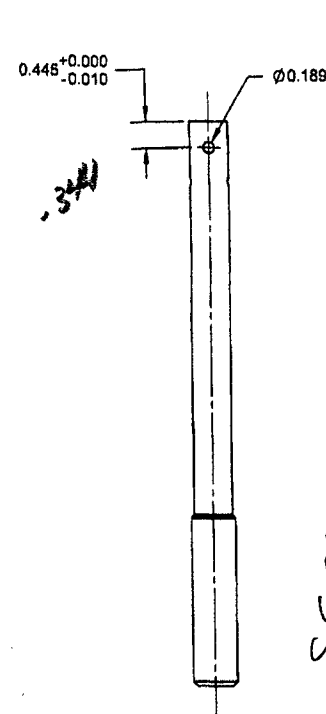
DETAIL H
SCALE 2X
D6-4



SECTION G-G
D4-4



D3688-7 STUD



SS 09/10/11

RELEASE
8/12/15

- NOTES:**
- 1) MATERIAL: 17-4PH STAINLESS STEEL ROUND BAR PER AMS 5643 H-900 CONDITION
 - 2) FINISH: NONE
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 - 6) IDENTIFICATION: NONE
 - 7) WEIGHT: 0.97 lb
 - 8) LPI PER ASTM 1417 LEVEL 2

DESIGN	RF	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. B
MFG. APPR.	<i>[Signature]</i>	D3688	SHEET 4 OF 4
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	STUD	NTS
DATE	08.11.24	COPYRIGHT © 2008 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR FOR ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

Jean-Luc Menard

From: David Shepherd [dshepherd@dartaero.com]
Sent: March 9, 2009 12:48 PM
To: 'Jean-Luc Menard'
Cc: 'Mike Petsche'; 'Roberto Fuentes (Roberto Fuentes)'
Subject: RE: engine mount studs D3691 & D3688

JL,

As discussed, it is acceptable to change from a #2 center drill to a #4 center drill on current production of the D3691 & D3688 engine mount studs.
Please consider this email acceptance of this deviation.

Roberto,

Please work with Kim to put D3691 and D3688 Under Review.
Then, please update drawings D3691 and D3688 for future production over the next month or so.

Thanks,
David

-----Original Message-----

From: Jean-Luc Menard [mailto:jmenard@dartaero.com]
Sent: Monday, March 09, 2009 9:44 AM
To: David Shepherd (David Shepherd)
Cc: Mike Petsche; Roberto Fuentes (Roberto Fuentes)
Subject: engine mount studs D3691 & D3688

David,

As dicussed,we would change the center drill in the parts to #4 from #2.

This would result in better support in the lathe resulting in better surface finish.

This is fine for these parts,what did you want to do for future parts?

Let me know.

JLM

Jean-Luc Menard

Production Engineering Coordinator

1270 Aberdeen Street

Hawkesbury Ontario

Canada K6A 1K7

Tel:(613)632-5200 Ext 227

<mailto:jmenard@dartaero.com> jmenard@dartaero.com



LIQUID PENETRANT TEST REPORT

P- 14936

CLIENT	<u>DAVE Aerospace</u>	DATE	<u>March 25, 2009</u>	PAGE	<u>1</u> OF <u>1</u>
ATTENTION	<u>LINDA / CHANTAL</u>	ACUREN JOB No.	<u>188-09-001357</u>	TIME	AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>
ADDRESS	<u>1270 ABELDEEN ST Hawkesbury</u>	PO/VO No.	<u>—</u>		
	<u>ON, K6A 1K7</u>	WORK LOCATION	<u>Hawkesbury</u>		
PROJECT	<u>F.P.I. on 100% EXTERNAL</u>	ACCEPTANCE STD.	<u>ASTM 1417</u>	REV./DATE	<u>2007</u>
ITEM(S) EXAMINED	<u>THREE CROSS TUBES</u>				
	<u>13 MACHINED PARTS</u>				

JOB DESCRIPTION	PROCEDURE No. LT-XXXX REV./DATE	TECHNIQUE No. LT-XXXX-XXX REV./DATE
PART No.	MATERIAL	THICKNESS
SCOPE	<u>WET FLUORESCENT LIQUID PENETRANT INSPECTION ON 13 STAINLESS</u>	
	<u>STEEL PARTS, 3 ALUMINE ALUMINUM CROSS TUBES.</u>	

TEST DETAILS	
METHOD <input checked="" type="checkbox"/> FLUORESCENT <input type="checkbox"/> VISIBLE	<input checked="" type="checkbox"/> WATER WASH <input type="checkbox"/> SOLVENT REMOVABLE <input type="checkbox"/> POST EMULSIFIED
FAMILY BRAND <u>MAGNAFLUX</u>	BLACK LIGHT S/N <u>IPES</u> <input type="checkbox"/> OUTPUT > 1000 μ W/cm ² <input type="checkbox"/> AMBIENT < 2 fc
PENETRANT <u>2L 67</u> MINIMUM DWELL TIME <u>45</u> MIN.	LIGHTING EQUIP. <input type="checkbox"/> FLASHLIGHT <input type="checkbox"/> TROUBLELIGHT <input type="checkbox"/> OUTPUT > 100 fc @ SURFACE
PENETRANT REMOVER <u>H2O</u> MINIMUM DRY TIME <u>>10</u> MIN.	OTHER <u>LABINO</u>
DEVELOPER <u>SKD 502</u> MINIMUM DWELL TIME <u>10</u> MIN.	LIGHT METER S/N
DEVELOPER TYPE <input checked="" type="checkbox"/> NON AQUEOUS <input type="checkbox"/> AQUEOUS <input type="checkbox"/> DRY	CAL DUE DATE <u>FEB 20 10</u>

TEST SURFACE	
SURFACE CONDITION <input type="checkbox"/> AS GROUND <input type="checkbox"/> AS WELDED <input type="checkbox"/> MACHINED <input type="checkbox"/> SHOT BLASTED <input type="checkbox"/> CLEAN BARE METAL	
SURFACE TEMPERATURE <input type="checkbox"/> < -4°C/ 20°F <input type="checkbox"/> -4°C/ 20°F TO 10°C/50°F <input type="checkbox"/> 10°C/50°F TO 52°C/125°F <input type="checkbox"/> > 52°C/125°F	

RESULTS- (<input type="checkbox"/> METRIC <input type="checkbox"/> IMPERIAL)			
QTY	COMMENTS	ACCEPT	REJECT
13	PC - JOB # 46055 ✓		
1	PC - JOB # 46469		
1	PC - JOB # 46471		
1	PC - JOB # 46472		
ALL ITEMS EXAMINED			
Found ACCEPTABLE.			

Scope of Services
The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care
In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES		DTR # <u>19822</u>
CLIENT REPRESENTATIVE <u>Jan Tittley</u>	TECHNICIAN (SIGNATURE) <u>Mike Johnston</u>	REPORT REVIEWED BY:
NAME (PRINT): <u>Jan Tittley</u>	NAME <u>Mike Johnston</u>	INITIALS
CGSB LEVEL <u>II</u> SNT LEVEL	CGSB LEVEL SNT LEVEL	
CGSB REG. No	CGSB REG. No	

WHITE - CLIENT COPY

CANARY - OFFICE COPY

PINK - TECHNICIAN COPY

GOLD - OFFICE COPY